

HISTORY AND AN ECONOMIC ANALYSIS OF MILK
SUPPLY PROBLEMS IN THE ST. LOUIS
MARKETING AREA, 1910-1949

BY

GLENN WILLIAM FREEMYER

B.S., Purdue University, 1937

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AN ABSTRACT OF A THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN AGRICULTURAL ECONOMICS
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Glenn W. Freemyer



HISTORY AND AN ECONOMIC ANALYSIS OF MILK SUPPLY PROBLEMS IN THE ST. LOUIS MARKETING AREA, 1910-1949

Many of the problems involved in providing a safe and an adequate supply of milk for the St. Louis market have been similar to those encountered in other markets, but in several respects the problems in this market have been unusual. A drastic decline in the number of producers during the past 15 years, and the failure of this midwestern market to attract an adequate supply of milk from local producers during the past 10 years have been of major importance. During this 15 year period, the population of the marketing area has increased approximately 20 percent and per capita consumption of fluid milk has increased nearly 40 percent.

This study was initiated to summarize and analyze the available information pertaining to the supply problems. A considerable portion of this study has been devoted to a development of the history of the market, and because Federal price regulation has provided the medium through which the marketing plan has been established since 1933, emphasis has been placed upon that subject.

Material for this study was obtained from the following sources: periodicals, producer association publications, special investigation and committee reports, public hearing records, reports of the market administrator, State and U. S. Department of Agriculture publications, U. S. Bureau of Census reports, studies conducted by Agricultural Colleges, and files of the market administrator and the U. S. Department of Agriculture.

ORGANIZATION OF THE MILK SUPPLY

As early as 1910, dairy farmers in southern Illinois voiced a need for an organization in order to improve their bargain-

ing situation with milk distributors. The first association was organized in 1912, and the next thirteen years of its life were marked by rather sporadic activities, fluctuating membership numbers and ineffective bargaining relationships with milk distributors. Several milk processing cooperatives were organized but all except one failed.

Most of the cooperatives which were formed prior to 1929 had but one main objective, namely to raise the price of milk. In the eyes of many producers, any movement in the price other than "up" was regarded as failure. Producers had no way of knowing the purposes for which distributors used the milk that they delivered; they had little information on prices paid for milk in other fluid markets or by condenseries; the methods of arriving at price decisions were often crude; most distributors were not willing to recognize the asserted right of producers to bargain; at times prices received by producers were relatively low, and different prices were paid by the various distributors. These factors caused discontent among producers and resulted in several milk strikes.

In the late "twenties", producer leadership began to emphasize marketing plans rather than price only. They recognized that in addition to a satisfactory price, there was also a need for measures which would reduce the great seasonal variation in milk receipts, improve the quality of the milk supply and provide for checking weights and tests of the milk delivered by producers. They realized that if any association was to succeed it would have to perform additional services for producers. This was the basis on which a new organization was formed in 1929. Consumers and most distributors supported the marketing plan offered by the new association. Even so, however, some producers failed to join the association and some distributors would not cooperate in the plan. For these and other reasons, this association requested a Federal license and agreement for the St. Louis market in 1933.

Two additional associations were organized during 1934 and 1935. Of the four thousand producers who supplied milk

for the market in December, 1949, almost 90 percent were members of these three cooperatives.

THE MILK SUPPLY AREA

The area from which St. Louis draws its milk supply is roughly diamond shaped; it extends approximately 150 miles to the northeast of St. Louis into Illinois, more than 200 miles to the southwest in Missouri and into northwestern Arkansas. Most of the supply area is not a specialized dairy area; live-stock, crop and general farms are relatively more important than dairy farms.

The potential supplies of milk for this market have increased materially. From 1929 to 1944, sales of whole milk (market milk and manufacturing milk) from farms which were located within 100 miles of St. Louis and which had herds of 10 or more cows increased 65 percent. During 1939, sales of whole milk from such farms were 1.2 times the total receipts of inspected milk in the St. Louis market; this ratio was 1.6 during 1944. The number of farms maintaining these larger herds increased more than 30 percent from 1939 to 1944.

In spite of these increases and the efforts of producer associations and handlers to bring new producers into the market, the number of producers continued to decline until 1948. Although total receipts of milk have increased approximately 20 percent since 1939, chiefly as a result of a substantial increase in production per farm, they have not been adequate to meet the year around requirements of the market.

SANITARY REGULATIONS

Although the city of St. Louis had health ordinances relating to the production and handling of milk prior to 1935, there was little effective sanitary regulation of the milk supply. The quality of the milk depended to a large extent upon the voluntary efforts of producers and handlers. An ordinance, patterned after the U. S. Public Health Standard Milk Ordi-

nance was passed in 1934 and in December, 1936, the standard ordinance was adopted. Following 1934, drastic alterations were made in enforcement practices and policies. Intense friction developed between producers and the health department. These were important factors contributing to the decline in the number of producers from more than 12 thousand in 1934 to less than 4 thousand by 1941 and to 3.3 thousand in 1948. Within the past year, the working relationship between producers and the health department has improved materially; this has been one of the factors which has contributed to recent increases in the number of producers supplying approved milk.

AVERAGE PRICES RECEIVED BY PRODUCERS

Annual average or blend prices received by producers for milk were compared with prices of other competing farm products by relating the various milk-product price ratios to their respective averages from 1910 through 1934.

From 1910 to 1920, milk prices were relatively low in comparison to prices of most competing farm products and prices paid by local condenseries. Milk prices lagged behind the rise in the general price level during World War I.

During the collapse of the price structure in the early "twenties", fluid milk prices decreased relatively more than the general price level; nevertheless, soon thereafter milk prices became relatively favorable in relation to the general price level and to most other competing farm products. Throughout the period from 1920 to 1929, however, prices received by producers were only slightly higher than prices paid by local condenseries.

During the depression of the early "thirties" milk prices decreased to the lowest level on record. If allowances are made for the increased costs which resulted from rigorous enforcement of the more exacting health ordinance requirements which began in 1935, net prices from that date until 1940 were generally unfavorable. During most of the World

War II period, prices were relatively favorable to increased milk receipts, but even then beef cattle and hog prices increased more than milk prices. A very favorable relationship between fluid milk prices and prices paid by condenseries during the past year, has and should continue to attract additional producers to this market.

FEDERAL PRICE REGULATION

Federal regulation of milk marketing is authorized by Congress and administered by the United States Department of Agriculture. It is designed to promote the interests of producers and to assure consumers of an adequate supply of milk through the establishment of market stability and orderly marketing conditions. The basic function performed by marketing agreements and orders issued under this program is the establishment of minimum prices to be paid by handlers for milk delivered by producers. The prices at which handlers sell milk whether at wholesale or to consumers at retail are not subject to regulation.

In June, 1933, producers for the St. Louis market applied for a milk license and agreement. Producers, handlers and consumers were well aware of the serious problems which confronted the dairy industry. The producers' association was unable to secure the cooperation of all the handlers in its marketing program. Prices received by producers had decreased to a record low. Price cutting by distributors at the retail and wholesale level had contributed to market instability. Consumers were concerned about the poor quality of the milk supply and under the prevailing conditions there appeared to be little chance for improvement. Per capita consumption of milk was extremely low. Federal regulation provided an authoritative basis through which the producers' association hoped to secure increased returns for all producers and extend its pricing and pooling program to all of the milk in the market. It provided a practical means through which producers and non-cooperating handlers could reconcile some of their differences. Handlers also sought a legal means to

establish minimum resale prices (which were provided in the early licenses) and a code of fair trade practices. Consumers hoped that through increased prices to producers improvement could be made in the quality of the milk supply. The Secretary of Agriculture issued a license and agreement in November, 1933. The market has been subject to regulation continuously since that date.

Under Federal regulation, the producer associations' function of bargaining directly with handlers for prices has been changed into one of requesting amendments to the regulation, developing facts relative to market conditions and presenting them at public hearings. Producers may bargain with handlers for premiums in addition to the minimum prices that are specified in the order. The associations continue to perform the function of selling, at the established prices, the milk that is produced by their members and to perform other services which may not be directly related to the order.

PRICE PLANS

Because market milk is produced primarily for fluid consumption, it must meet established health ordinance requirements, and because it is bulky and often must be transported considerable distances, it costs more at the market than ordinary milk used for manufacturing purposes.

The quantity of milk received in a market is never exactly equal and sometimes is greatly different from the quantity needed to supply the requirements of inspected milk. This may result from day to day, seasonal, or cyclical variations in the quantity of milk received from producers, or from variations in the quantity purchased by consumers or from some combination of all of these factors. Among handlers there are also differences in the proportions of their total receipts which are sold in fluid products which must be made of inspected milk. Milk used in these products requires and commands a higher price than milk used in manufactured products. These are the underlying factors which led to the establishment of

classified price plans in organized fluid milk markets.

The classified price plan was first introduced by the producers association in the St. Louis market in 1930. Prior to that time, milk had been purchased by handlers on a "flat" price basis. The plan was adopted to minimize the problems connected with "surplus" milk and the differences in the pattern of utilization among handlers. This plan was applied on a market wide basis under the first Federal marketing agreement and license in 1933.

From 1930 to 1936, three classes of milk were provided and thereafter two classes. From 1930 to 1940, the Class I (milk for fluid consumption) price was a specific price which remained at the same figure until it was altered through negotiation between the producers' association and contracting handlers or (after 1933) through public hearing and amendment of the regulation. Class II (milk used for fluid cream, flavored milk drinks, and manufactured products) prices, in contrast were established on a flexible basis. Since 1940, both Class I and Class II prices have been established on a flexible basis by adding differentials (for each class) to a basic formula price. Since 1941, the basic price used in a given month has been the higher of two formula prices, namely: the average paying price of 23 condenseries, and the price derived from a butter nonfat dry milk solids formula.

Although factors other than transportation and ordinance compliance costs are important in determining the size of the class differentials which must be added to the manufacturing milk price at any particular time, an interesting analysis may be made of the size of the differentials which have been established over a period of time in relation to these cost factors. For this purpose the period 1942 to 1948 was used.

During this period, the differentials which applied to Class II milk used for products which had to be made of approved milk ("ordinance products") averaged 32 cents per hundred-weight f.o.b. the marketing area. The location adjustment (transportation allowance) on milk originating 100 miles from

the marketing area, as provided in Order No. 3, was 22 cents per hundredweight. Thus, at the hundred mile zone the price for Class II milk was only 10 cents greater than the price for manufacturing milk. The costs of meeting the health ordinance requirements were estimated to be 54 cents per hundredweight during this period. This suggests that prices for milk used in Class II "ordinance products" failed by 44 cents per hundredweight to contribute its share of the extra costs of obtaining inspected milk originating in the 100 mile zone. For milk originating adjacent to the marketing area, with no allowance for transportation, the comparable "deficit" was 22 cents per hundredweight and for milk originating at a distance of 150 miles it was 49 cents per hundredweight. If all of the Class II milk (including manufacturing uses) were considered, the average Class II differential would be 28 cents and the above deficits would be increased four cents per hundredweight.

From 1942 to 1948, the average annual Class I differential f.o.b. the marketing area was \$1.00 per hundredweight. During this period, 83 percent of the milk received from producers was classified as Class I milk and 17 percent was classified as Class II milk.

If we assume that the average price to producers must be equal to the manufacturing milk price plus the additional cost of producing inspected milk at its point of origin, then the 26-cent difference between the cost of complying with the health ordinance (54 cents) and the average Class II differential at the market (28 cents) must be contributed to the average price paid to producers through the Class I price. Twenty-six cents per hundredweight on 17 percent of the milk is equal to approximately five cents per hundredweight on the 83 percent of Class I milk. On the Class I milk which originated at the 100 mile zone where the location adjustment was 22 cents per hundredweight, the Class I milk had to contribute approximately 10 cents per hundredweight.

To a producer of inspected milk who was located adjacent to the marketing area and who produced milk at our

estimated average cost of meeting the ordinance requirements, an "incentive" of 41 cents (\$1.00 minus 54 cents, minus 5 cents) per hundredweight on the 83 percent of Class I milk, or approximately 34 cents per hundredweight on total deliveries was provided by the Class I price structure. This incentive includes allowances for additional risks, bother, and uncertainties which are involved in producing inspected milk; it includes allowances to overcome aversion of producers to inspection compliance, and to off-set relatively higher returns which may be secured from alternative enterprises. Rent, if any, accruing to a producer because of location in relation to the marketing area also is included. At the 100 mile zone, the Class I price provided an "incentive" of 14 cents on the Class I milk or 12 cents per hundredweight on total deliveries. At points approximately 210 miles beyond the marketing area, no "incentive" to enter the market was offered to producers who would have incurred average or greater than average costs.

Consumers of Class I milk obviously had to contribute a large portion of the extra costs of attracting inspected milk to supply the market with Class II "ordinance products". An amendment to Order No. 3, effective August 1, 1949, provided for the classification of all "ordinance products" in Class I milk. At the same time, provision was made for adjusting the Class I price differential in accordance with the relationship between receipts of milk from producers and total Class I sales.

POOLING

From 1930 until 1933, a contract between the producers' association and cooperating handlers provided for an individual-handler pooling arrangement with a "base and surplus" plan. A market-wide pool plan which also incorporated the "base and surplus" plan was introduced under the first Federal license in 1933. A year later the "base and surplus" plan was eliminated; in March, 1935, the market-wide pool method of paying producers was replaced by the individual-handler pool; the latter has been used continuously since that time.

One of the important problems which is confronted in many

fluid milk markets is the allocation of approved milk among handlers in accordance with their needs of milk for "ordinance products". Under both types of pools, the class price structure is an important factor in the allocation of milk among individual handlers; however, because the individual-handler pool itself assists in the allocation of milk, less dependence need be placed upon class prices under it than under a market-wide pool.

In markets where it has been customary for certain handlers to specialize in handling "excess" milk, or under conditions of a short-run over production of milk in relation to the needs of the market, the market-wide pool may contribute to more orderly marketing conditions by providing uniform prices to all producers.

The adjustment of class prices which apply to milk used in "ordinance products" by a "supply-demand" factor (i.e., the relation between receipts of milk and its utilization for "ordinance products") affords an automatic check on the overloading of a market with approved milk; it may be particularly useful in preventing an over-loading of a market which has a market-wide pooling arrangement.

HANDLERS

A decline in the number of handlers which apparently set in around 1910 has continued to the present time. During 1934, about 48 handlers distributed milk in the marketing area, and by 1948 the number had decreased to 32. The number of handlers changed from month to month as new handlers entered the market and as others discontinued operations.

Twenty-five handlers who were subject to Federal regulation distributed milk in the marketing area continuously from 1936 to 1948. In comparison with the four largest of these handlers, the remaining 21 sold a relatively small proportion of the total amount of milk sold.

The decline in the number of handlers appears to have had no causal relationship with the decline in the number of producers.

CONCLUSIONS

The major factors which have contributed to the shortage of locally produced milk for the St. Louis market are as follows: (1) a substantial increase in the requirements of milk which has resulted from population growth and a decided upward trend in per capita consumption; and (2) a decline in producer numbers and the failure of market receipts to increase commensurately with the increase in requirements. The decline in producer numbers resulted from the rigorous enforcement of health ordinance requirements, relatively unfavorable blend prices received by producers and war time shortages of labor, supplies and equipment.

A noted improvement in the working relationship between producers and the health department, and increases in the class price differentials which apply to all milk used for "ordinance products" have contributed to recent increases in the number of producers and in the receipts of locally produced milk. It appears that the current improvements in the supply situation will continue, and that within the next year the market will receive sufficient milk from local producers to meet its year around requirements of inspected milk.

Federal regulation alone cannot cure all of the ills of a market. The St. Louis market has benefited through Federal regulation; more orderly marketing has been promoted. Several of the causes for misunderstanding, discontent and milk strikes which characterized the history of this market prior to regulation have been eliminated. Federal regulation has provided an effective means through which producers and handlers have been able to reconcile most of their differences.

VITA

Glenn William Freemyer was born in Jay County, Indiana on October 9, 1913. He was graduated from the Madison Township High School in 1931. He received the degree of Bachelor of Science in Agriculture from Purdue University in 1937 and the degree of Master of Science in Agricultural Economics from the University of Illinois in 1939. He attended the University of Chicago from October, 1940 to May, 1941.

He was appointed to the staff of the Department of Agricultural Economics, University of Illinois, as an assistant in September, 1937, and in that capacity conducted research in marketing and assisted in teaching marketing and agricultural economics until September, 1940. From July, 1941 to July, 1942, he was employed as statistician on the staff of the St. Louis Federal Milk Market Administrator's Office. He served in the armed forces of the United States from July, 1942 until April, 1946. During most of that period he was engaged in the procurement of fluid milk and ice cream. In May, 1946, he was appointed as an agricultural economist in the Dairy Branch, Production and Marketing Adminis-

tration, United States Department of Agriculture. Since that date he has been engaged in dairy marketing research and in the promulgation and administration of Federal milk marketing orders.

Published writings at the University of Illinois include "Eastern Corn Belt Farmers' Cooperative Shifts Emphasis to Meet Changing Conditions," *Illinois Farm Economics*, October, 1939. He was co-author with L. J. Norton and L. H. Simerl of several mimeographed publications which contain summaries of the results of the 1937 survey of Illinois cooperatives (1938). He was co-author with R. W. Bartlett of "Summary of Operations of Fourteen Creamery Trucks in Central Illinois," AE-966, (1939) and co-author with L. J. Norton of "Financial Results of the Operations of Farmers' Elevators in Illinois, 1938 and 1939," AE-1445, (1940).

He was also co-author with Fred L. Shipley of "Market Information for the St. Louis Milk Marketing Area, 1934-1941," Bulletin I, Federal Milk Market Administrator's Office, St. Louis, Missouri, (1942).

